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*Cardiac Asthenia, or Heart-exhaustion.*

BY

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## CARDIAC ASTHENIA, OR HEART-EXHAUSTION.

BY J. M. DA COSTA, M.D., LL.D.

It is my purpose to describe in this paper a form of weak heart that is not clearly recognized, yet that has features of its own. Weak heart, as it is commonly known, comes from organic causes, such as fatty degeneration, dilatation of the heart, myocarditis; or we notice it after acute diseases, as after typhoid fever, influenza, diphtheria, in which some special poison has affected the circulation; or as the result of more chronic poisoning by tobacco, alcohol, lithæmia, and gout; or of anæmia and deteriorated blood. But this is familiar knowledge, and not the kind of weak heart here to be investigated. I rather desire to examine the kind in which there is for a long period habitual feeble action of the heart, and in which this constitutes the essential and only appreciable disorder.

This heart-feebleness or heart-exhaustion comes from two causes: it is due either to nervous failure or to a weak heart muscle; in some instances to a combination of both. It will for the present serve our purposes best if these cases of essential weak heart from nervous causes are first described, and if we then endeavor to ascertain the signs by which they may be told apart from the instances of muscular weakness.

The affection generally manifests itself in those whose nervous system has been strained by worry or by overwork. It shows itself frequently by a veritable and sudden cardiac collapse, though the causes that have led to this become apparent enough when inquired into, and there have been warning signs. The patient is obliged to stay in bed; all attempts at sitting up produce a sense of swooning and a vanishing pulse, or there is actual fainting from time to time. The heart's action is feeble, the pulse very small and compressible, and generally increased in frequency; there is a sense of uneasiness in the cardiac region, but very rarely actual pain; the extremities and the nose and ears are cold; the general temperature is somewhat below the norm. The capillary circulation is poor, the skin pale, occasionally injected or flushed; sweating is the exception. The breathing is conspicuously unaltered, although there may be a sense of oppression. "I am out of heart rather than out of breath," was the expression of a very observant patient, who added: "The heart has taken possession of the whole chest." The reflexes are unimpaired or sluggish. The appetite is poor, though there are no marked gastric



symptoms; the bowels are constipated. Insomnia may be complained of; apprehension and low spirits are very common. From this state of depression and disturbed circulation the patient rallies but slowly. It is one or two months before he can sit up without inclination to faintness, and months more before he recovers. The course of the disease is as markedly chronic as the onset has been markedly rapid.

Let me cite some illustrative cases.

CASE I.—Mr. C., about forty-five years of age, of extremely regular and methodical habits, always very sparing in the use of tobacco, had been in good health barring slight dyspeptic difficulties and with them occasional palpitations, which, however, I had not found to be associated with any marked cardiac disorder until the spring of 1883. At that time he had several matters to worry him, and a sudden death in his family proved a great shock. He broke down at once; the heart's action became very rapid and feeble—so feeble that he had to remain in bed four weeks, and his head had to be lifted even from the pillow by the nurse, for any attempt to raise himself produced faintness and almost cessation of cardiac action, the pulse becoming imperceptible. There was coldness of the extremities, but no shortness of breath. The heart was both irregular and feeble, the first sound very short, and at times a faint, systolic apex murmur was perceived. There was an uneasy feeling in the cardiac region; no actual pain. A marked symptom was cold hands and feet, as was also tremulousness. He slept fairly well. The urine was free from albumin and sugar.

He remained seventeen weeks in the house, and then was taken to the seashore on a bed. During the remainder of the summer and autumn he improved slowly, but never got beyond the porch of his cottage, and was not able to return to his office until nine months after the breakdown. Even then the heart's action was very weak, and it took him two years to recover, all the time being most careful in his diet, in resting, and in the use of occasional doses of heart tonics, prominent among which were at one time *digitalis* and *nux vomica*.

Examined by me in May, 1892, I found him in excellent condition, though the circulation was still not strong, for occasionally the hands and feet were cold, and tremulousness manifested itself after meals, but the heart had given him, on the whole, no trouble, and it was absolutely regular in rhythm. He had no gouty symptoms, nor was there more than very occasional indigestion. The tongue was clean; the pulse was 80; the first sound of the heart weak and indistinct, the second unchanged. The urine was acid, its specific gravity 1022, and it was free from albumin and sugar. He had had no palpitation for between four and five years, but he was still careful not to hurry, and to go slowly up and down stairs. One-fortieth of a grain of strychnia and a few grains of sulphate of iron were at that time given daily, and continued for a considerable period, and now, nearly eleven years after the original seizure, he is well and takes a usual amount of exercise without noticing that he has a heart. The impulse is normal, the first sound of good volume, the pulse 72; indeed, his cardiac symptoms are a thing of the past.

CASE II.—Mrs. W., twenty-eight years of age, while in Europe two years ago, was placed on a very rigid diet for the cure of dyspeptic



symptoms. Article of food after article was withdrawn; she felt herself growing weaker, and her friends noticed that she was becoming paler. In addition, she had had an attack of influenza during the winter, and had been under much worry. The urine was not albuminous, and there was no uterine disorder. Suddenly, in June, a collapse took place; the heart's action became extremely rapid and feeble, threatening to stop altogether, and for several days she had to be fed every three-quarters of an hour, and was also freely stimulated. If allowed to go longer without food, she became utterly exhausted and faint, though she only lost consciousness once. Even the food and stimulant were not sufficient to keep the circulation going, and repeated hypodermatic injections of ether had to be resorted to. She remained in bed for weeks, the least exertion producing faintness and vanishing pulse. There was no sweating, no marked shortness of breath; the extremities were cold, as was the face and nose, and several times the fingers became rigid, as if a convulsion were about to happen. When she was able to get out of bed a dropsical swelling attracted attention, but the urine, though scanty, was found free from albumin. About three months after the original syncope attack, she was able to go to Schwalbach, where the dropsical symptoms yielded, and her health markedly improved, but even now her heart's action is weak. Without cause, or after only slight fatigue, she becomes pale, the heart acts rapidly and irregularly, the feelings of faintness recur. The impulse of the heart is not strong; the first sound is short and feeble, the second distinct; there is no increased size of the heart, no murmur, and no pain. She can walk considerable distances without disturbance, but any worry or fatigue brings on an attack of failing circulation. There are at present no dyspeptic symptoms, but she is constipated; there is no decided uterine disorder, though within a year she has been treated for one. She inherits gout, and at times has excess of uric acid in the urine; for instance, an examination made last November showed a heavy deposit of urates, no albumin and no sugar, the specific gravity being 1030. *Nux vomica* and occasional courses of iron are the remedies that are chiefly used, besides a full diet.

In this case undoubtedly anæmia played a part, but it did not in the first case, nor in the one I am about to describe.

CASE III.—Mrs. B., a large woman of fine physique and strength, who had been overburdened with household matters, began, in the latter months of 1892, to be easily fatigued, had cold extremities, and attacks like croup, followed by a complete breakdown, which confined her to bed. The appetite was poor, the respiration was normal, the temperature slightly elevated, about  $99^{\circ}$ ; the pulse variable, ranging between 60 and 90, and weak in volume. There was no cardiac murmur; the first sound was short. The urine was free from albumin. Sweating was an occasional symptom. She had severe fainting spells, and grew so weak that she could not raise her head from the pillow without an unpleasant feeling, as if she were going to faint. On strychnia, wine, food at short intervals, and massage, she improved for a few weeks, and then again became so ill that it was necessary to nourish her by the bowel because of extreme distress and palpitation following solid food. After this, under sustained nourishment, whiskey, which agreed with her better than any other stimulant, and arsenite of sodium, a gradual but steady improvement took place, though for several months a tendency to turn

giddy and faint if she raised her hand above her head, as, for instance, to light the gas, remained. A trip to the seashore, in May, 1893, proved very beneficial, and on coming home she felt better than at any time since her illness began; the only sign remaining was that the calves of the legs swelled up during the day, the difference between morning and evening being about three inches. Since that time the improvement has been uninterrupted. All treatment, except the massage, has been for some months suspended, and this, too, has lately been stopped. There is no swelling in the legs. The heart's action is about 74. Her color is excellent, and she has a good appetite. No laryngeal attacks have happened for more than sixteen months. She is able to walk a great deal without fatigue, has a brilliant color, and is in better health than she has been for years.

In this case there was the unusual symptom of occasional decided elevation of temperature, though I do not know that it ever exceeded  $101^{\circ}$ . The color of the face was always good. The attacks, like spasmodic croup, I now believe were of nervous origin, and show how the nervous cardiac malady may coexist with other nerve disturbances or be replaced by them. Another illustration of this we shall presently study in Case V. The tendency to fainting is at times a very marked symptom. It proved itself so in the following instance, which was, however, not uncomplicated, as early in the case a slight amount of catarrhal jaundice also existed:

CASE IV.—I saw some years ago, with Dr. Hulshizer, an overworked young fisherman in whom there was irregular action as well as rapidity of action of the weak heart. The attack of cardiac disturbance was preceded by a slight gastric catarrh of at least six weeks' duration, with some yellowness of the conjunctivæ and mild catarrhal icterus. There was no fever. The urine was high-colored, but free from albumin. The heart-beat, when in bed, was from 130 to 140 in the minute, and tumultuous; about every sixth to eighth beat the impulse halted, and there was a disproportion between the pulse, which was about 90, and the heart's action, which was over 130. The first sound was very short and indistinct; the second distinct. There was no murmur and no enlargement. The respirations were not materially increased in frequency. Any attempt to assume the erect position produced greatly accelerated action of the heart. He had been in this condition for upward of three months, having from one to thirty-five fainting spells daily. Any mental excitement was sure to bring these on; absolute rest in bed largely prevented them. He had no spells at night. Neither occasional mercurials followed by saline laxatives, nor a treatment by digitalis and strychnine, nor by adonidin, one tenth of a grain four times a day, produced at first any decided effect; but, gradually under a very strict but sustaining diet, the use of a mixture of nux vomica, capsicum, bicarbonate of sodium and rhubarb, prescribed by Dr. Hulshizer, and holding the heart under control by digitalis, a complete recovery took place.

The rhythm of the heart is rarely as irregular as in the case just reported. The heart's action is mostly accelerated, but not irregular. It is very variable, always rises markedly after meals, and is influenced



by the slightest exertion. I have the pulse record of a patient lying before me who took it, without my knowledge, many times a day, and in whom, even after he was able to be up, the pulse was 47 in the morning before the bath, and 88 after. In the same case the pulse, taken every hour and a half while sitting quietly in a chair, is noted at 76, 60, 56. Slow pulses, pulses under 60, are, however, quite the exception. The pulse is feeble, very compressible, at times almost imperceptible. The heart's action is influenced by position, but not to the extent to which I have seen the irritable heart influenced.

The physical signs of the heart disorder are very significant. There is no increased percussion dulness, the impulse is feeble, difficult to find, not diffuse. The first sound is short, lacking in volume, and may be obscure or short and valvular; the second is not accentuated. Excluding anæmic murmurs, which are very infrequent, since anæmia does not play an important part in the affection, we may have, though this is also rare, functional apex murmurs of dynamic origin, and these murmurs may be brought out, as shown by Dr. John K. Mitchell (*Transactions of the College of Physicians of Philadelphia*, 1892), by suddenly closing the hand tightly. A sensitiveness to touch in the cardiac region is at times noticed.

That the nervous system is very decidedly affected is evident. Indeed, most cases happen in those who from overwork or worry have had their nervous tone markedly lowered. The breakdown is primarily in the nervous system and not in the heart. The cardiac malady is throughout neurosal rather than muscular. It is very difficult to say to what part of the nervous system influencing the heart to ascribe the disorder. Granting that the central nervous system is affected, I am inclined to attribute the cardiac weakness more immediately to disturbances in the cardiac ganglia than in the centres in the medulla and to the disordered inhibitory influence of the vagus. The changed respiration seems to be against the view of the centres in the medulla being decidedly affected, as the centres for the heart and the respiration are there so closely connected. The malady is not hysterical, as in the great majority of cases hysterical symptoms are conspicuously absent. But I have known them to come on when the case was of long duration, and I have seen two marked instances of this in men.

It is strange how the cardiac asthenia may be antecedent to or alternate with other manifestations of nerve disorder. We have seen something of the kind in Case III. I will now cite a case in which the cardiac affection preceded diabetes, evidently of nervous origin.

CASE V.—Mr. McB., thirty-seven years of age, was seen in the autumn of 1886 with Dr. McFerran. I found him in bed in a state of great prostration. He had not felt very well for some months, and had been anxious, very much overworked, and slightly dyspeptic for some

time. On Sunday, on going to church, he nearly fainted and had to return home. Feeling somewhat better next day, he went out, but was soon obliged to return, reaching home with difficulty, and was forced to go to bed; even attempts to sit up in bed produced a sense of faintness and of cardiac uneasiness. When seen, he had been in bed two weeks. The pulse was weak and accelerated, the hands and feet cold, and at times moist with perspiration. There was no increased percussion dullness. The first sound of the heart was short, the second distinct; there was no murmur.

He remained in bed three weeks more, and was altogether eight weeks at home. During all this time the cardiac pain continued, but shortness of breath and palpitation only appeared on exertion; the first sound was short, the second very distinct. He had a good appetite. The urine, repeatedly examined, was found to be normal in specific gravity and in ingredients. There was facial neuralgia.

Seen in November, 1887, he looked pale, but was able to work four or five hours daily; he was sleepy in the afternoons; the hands and feet still felt cold at times. He had a large appetite, and was gaining flesh, but spoke of being thirsty. The tongue was clean, the bowels were regular. The pulse was 110, and still compressible; the first sound of the heart was somewhat valvular; there was no murmur. The urine was normal in quantity, and non-albuminous. Under strophanthus, phosphoric acid, digitalis and adonidin, given at different times, and shower baths, he greatly improved.

I did not see Mr. McB. again until the spring of 1888. He was in good condition, though the heart still palpitated. He remained fairly well all summer, though I believe late in the spring his digestion troubled him a little, and he had some boils. In September of 1888, he was not so well; he was again working too hard. The pulse was 100 and feeble. He had a little flush in the afternoons, but no dryness of skin. Chloride of barium, one-tenth of a grain, was given three times daily. After this he improved, and was not seen until early in December, when he reported that his legs ached, the stomach was disordered, the heart was rapid, varying between 96 and 120, but not irregular. He was losing flesh; the throat had been dry for a few days, and he was very thirsty. An examination of the urine, which had for some time been increased in quantity, showed the presence of sugar, with a specific gravity of 1030. He was placed on bromide of arsenic and an anti-diabetic diet, which was not well tolerated, and he continued to grow weak, though no real attack of cardiac failure happened.

On December 18th, during the night, attacks which were described as spasms came on, after which he was very dull. On the next afternoon there was a recurrence of the so-called spasms, followed by great drowsiness, and he died in coma with all the signs of acetonæmia.

The disease is one of all ages except childhood and very old age. The great majority of my cases have been in men. I have seen a number of instances among physicians. It is always a long-drawn-out affection.

The diagnosis is not, as a rule, difficult. The evident nature of the causes that have given rise to the heart-wreck, its generally sudden



onset, the unembarrassed breathing, the feebleness of the pulse and of the cardiac impulse, are full of significance. The physical signs as well as the state of the respiration and the clinical history separate the weak asthenic heart from the weak heart of organic type, such as the typical ones of this group—fatty degeneration and cardiac dilatation.

From other members of the functional group, as from the irritable heart, it is also distinguished by the history, by the fact that in this malady the patient has had a heart-strain or a gastric or an intestinal affection, that he is able to be about, that the heart's action is generally much more rapid, much more influenced by change of posture, that the impulse is sharp, jerky, diffuse, the pulse quick, small, not so faint, the second cardiac sound sharp and distinct. The tobacco heart resembles the asthenic heart much more closely. Indeed, I am inclined to believe that it is in the main identical, though stopping short in degree. We often observe the same feeble impulse, the feeble pulse—apt, however, to be more irregular and intermitting—respiration but slightly disturbed, a short, valvular first sound, and insomnia and nervousness. I found all these symptoms noted in a patient seen the other day, who smoked daily not less than twelve to fifteen of the strongest cigars obtainable, besides chewing incessantly, and in whom the pulse was 96, the respirations were 20; there was also tremor to such an extent that he could hardly write. It is further of interest to notice that in the experiments made by Hare (*The Physiological and Pathological Effects of the Use of Tobacco*, 1885), as well as by Benham, it is proved that nicotine does not act on the heart muscle, but influences the circulation through the heart's motor apparatus directly, or through the cardio-inhibitory centres in the medulla or the peripheral endings of the vagi or the ganglion of Ludwig.

The most difficult point in diagnosis is to distinguish the weak heart of nervous origin from those much rarer cases of inherent muscular weakness in which, however, no obvious disease of the muscle exists. I made these, at the beginning of this paper, the second group of weak heart. It is very much rarer than the nervous form, and very much more persistent. The symptoms are the same as regards the feeble circulation, but there is this decided difference: shortness of breath, especially on exertion, is very common, and œdema of the ankles and insteps, passing though it be, is often met with. The physical signs in the heart do not differ, except that the first sign is more toneless, undefined, not so valvular; reduplication of either sound of the heart is much more usual, and so are functional dynamic apex murmurs. I have endeavored to ascertain whether the sphygmograph enables us to distinguish between these two groups of cases, but as yet without satisfactory result. The sphygmographic tracings in the nervous asthenic heart show a line of ascent not high and apt to be oblique, a rather

sharp summit, and irregularity in the descent. In the weak muscular heart the upstroke is apt to be straighter, the irregularities in the diastolic period yet more marked. In either, the low tension may give rise to considerable amplitude in the upstroke. I will give the history of these cases of weak heart from weak muscle, which will show its character.

CASE VI.—Mr. S., a tall, thin man, of extremely temperate habits, but not of strong muscular system, came under my observation twelve years ago, with a feeble heart muscle. He had been pronounced to have dilatation of the heart, but had never shown any dropsical symptoms. I found the first sound of the heart very feeble, though not valvular; the second distinct. The pulse was rapid and small, and frequently 96. There was no increased percussion dulness. He had a tendency to clamminess of the skin. There was slight shortness of breath on exertion, as well as oppression. He was not a dyspeptic; he had at one time used a great deal of tobacco. The urine presented nothing abnormal, and the eye-ground showed nothing wrong. The pulse is always weak, but he does very well unless he exerts himself too much, when his heart becomes rapid and somewhat irregular, and a feeling of soreness in the cardiac region is complained of. A day or two of rest on his back always makes him feel better. He is very sensitive to the action of drugs. *Digitalis* does not suit him, nor does *strophanthus* answer a good purpose; he does best on *ignatia amara* or on strychnine. Nevertheless, by careful living, and by using from time to time courses of *ignatia* or strychnine, years have passed, and he is now in better general condition, though still with a weak heart, than when he came under observation in 1881. It has become possible for him to go nine or ten months without treatment; three or four were formerly his utmost limit.

The next case is one in which the cardiac symptoms are still more marked, and in which intermittent mitral murmur and dropsical symptoms due, I believe, to temporary dilatation, were observed. It, too, has been many years under observation.

CASE VII.—A spare, active man, now in the early sixties, has been under my observation for fully fifteen years. There is never a time when the feeble action of his heart is not manifest; the impulse is always found to be weak, not diffused; the first sound is dull and lacking in volume, the second distinct; the pulse is generally about 72, compressible, and at times irregular. Ordinarily there is no shortness of breath, but it occurs on exertion. There is no anæmia, no disease of the kidney, and the digestive powers are fair. A curious feature of the case is an intermittent cardiac murmur, systolic and mitral—not harsh; it may be noticed for a week or two at a time, and then disappears. The patient has had dropsical swelling of the ankles, from which, however, he has entirely recovered. He was once, while travelling, when he had fatigued himself, seized with an attack of cardiac weakness so marked that but for the prompt attention of a physician who was with him he would probably have died. Notwithstanding his weak heart, he does a great deal of active professional work.



The heart-muscle in these long-standing cases is probably flabby. I doubt if it presents marked organic change. It may be that in very chronic cases a slow form of myocarditis exists, but of this I have no evidence. I am, however, certain that dilatation of the heart and insufficiency of the mitral valve may finally come on, and the affection thus become one of pronounced organic kind.

CASE VIII.—A young lady of delicate physique, whose case I watched from early womanhood, had always a very weak heart, a feeble impulse, a short, ill-defined first sound, a second sound of moderate distinctness, no murmur, and no increased percussion dulness. She never had much color, but was not anemic. Walking in a strong wind put her out of breath, as did going up stairs. Everything was done to improve her general health, but the heart-muscle remained feeble. She married, but was childless. Gradually the shortness of breath became a more marked symptom, especially by periods in connection with signs of congestion of the lungs. The heart evidently dilated, the transverse percussion dulness increased, and a systolic murmur became manifest and persistent. Finally dropsical symptoms supervened, and she died with all the symptoms of a mitral disease with cardiac dilatation. She was a long time under observation, and it was six or seven years from the time I first saw her until the weak heart dilated and the signs of organic disease appeared.

These cases will, I think, make evident the manifestations and history of weak hearts where the heart-muscle is essentially weak, and show their course to be different from the asthenic nervous heart. There are mixed cases undoubtedly, cases in which from worry or overwork heart-exhaustion has been superadded to feeble muscle. Here the disorders are very difficult of separation, though even here an accurate history may tell us how much value to attach to either.

In the asthenic nervous heart the prognosis is very good. Under treatment and in time they all recover. There is danger from so-called heart-failure, but I have never met with an instance. I cannot say the same for the heart weak from muscle weakness. I remember one instance that I saw with a medical friend, in which with only a very moderate amount of bronchitis a sudden and unlooked-for fatal collapse occurred. The epidemic of influenza through which we have been passing has given me the opportunity of witnessing how badly these weak hearts bear the strain of acute disease. In two instances in which I had known of the existence of the feeble heart-muscle for years, life was only saved by the most strenuous exertions; in one, the issue was for days doubtful. On the other hand, in the asthenic nervous heart, certainly when it has once regained its tone, acute disease does not produce fresh heart-exhaustion. Thus I saw, eight years ago, with Dr. Louis Starr, the case of Mrs. H., a middle-aged woman, with weak nervous heart and a tendency to faintness on raising her head from the pillow. The extremities were cold, there was no chest pain and no shortness of breath. She recovered com-

pletely, chiefly under the steady use of *nux vomica*. Four years ago, during influenza, she had an attack of pneumonia, and was very ill, but recovered, and had subsequently, about two years after this, a more limited slight attack, which she bore well, and is now in good health.

The treatment judged most advisable has in part become evident from the cases reported. But it may be well to give a summary of results. For the cases of the asthenic nervous heart, rest in bed is at first essential, and, when they are able to sit up, nothing does them so much good as graduated shower-baths. Massage, too, may be employed, but many cannot at first bear it, and it comes in better at a later stage of the treatment. It is then, too, that Swedish movements may be recommended, and carefully adjusted exercise, such as walking, or gentle horse-back exercise, or light gymnastics. These agents can be resorted to from the start, where the weak heart depends on a weak heart-muscle. From Swedish movements that are specially adapted to promote the flow of blood and to strengthen the heart, I have seen in this class of cases great good. The action of the heart has become distinctly stronger and more regular, and in young persons I believe a permanent curative result may be accomplished. The food should always be as nutritious as possible, taken as frequently and in amount as large as the digestion will readily tolerate, and stimulants often have to be resorted to. It is astonishing in what quantities they are borne, and temporarily even required, in the nervous heart; though, for fear of forming a habit, we have to withdraw them as soon as the circulation strengthens. The tendency to constipation demands attention, and is to be remedied by means of diet and of light laxatives.

Among drugs strychnine stands pre-eminent. It is suitable to both the forms of weak heart under discussion. The dose need not be large—rarely exceeding one-thirtieth of a grain three times daily—but it must be continuous. Iron is not called for except when a complication with anemia exists, or later in the case as a general tonic, and its tendency to constipate makes it often a doubtful remedy. Arsenic, in the nervous asthenic heart, comes next to strychnine. Its action cannot be explained by its removing anemia, for it proves to be valuable where the blood-count shows this not to exist. I have the record of one case in which the patient, who also suffered from hay asthma, began its use for the cure of this, and, finding the arsenic very strengthening to his heart, continued it of his own accord for four months, in doses of one hundredth of a grain of arsenite of sodium three times daily, with the greatest benefit to his general health and a permanent removal of the heart symptoms.

Of so-called heart tonics *digitalis* is the best, but it is not the certain remedy we might suppose. It is on the whole best adapted to the cases with muscle weakness. Where we give it in large doses the patient



should be kept in bed. In a number of instances it does not suit at all. Strophanthus is generally said to be inferior to digitalis. I have used most of the other remedies of this class in different cases. Adonidin and chloride of barium have done me at times good service; cactus and convallaria have been disappointing. The latter I have ceased to use. Caffeine and cocaine are both valuable, but their action cannot be kept up; from cocaine we would run the risk of establishing the cocaine habit. It is, however, very serviceable during urgent symptoms of failing heart. Nitroglycerin is not of much avail, except there be cardiac pain, or in combination with remedies like digitalis, which act more distinctly on the force of the heart. Bromides, valerian, and opium ought to be left to meet special indications of nervous disturbance.







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